VIKAS PUBLIC SCHOOL, RANIA

SA-1 in Mathematics

Class-10th

Time : 2 hr. M. Marks=40

General Instructions :

1. The question paper contains three parts A, B and C.

2. Section A consists of 20 questions of 1 mark each. Attempt any 16 questions.

3. Section B consists of 20 questions of 1 mark each. Attempt any 16 questions.

4. Section C consists of 10 questions based on two Case Studies. Attempt any 8 questions.

5. There is no negative marking.

	QUESTIC	<u>INS</u>		<u>Marks</u>
	SECTION	N-A		
A box contains cards numbered 6 to 50. A card is drawn at random from the box. The			<u>1</u>	
probability that the drawn card has a number which is a perfect square like 4,9is				
$(a)^{\frac{1}{4}}$	$(b)\frac{2}{15}$	$(c)\frac{4}{45}$	$(d)\frac{1}{9}$	
If $sin\theta = x$ and co	$s\theta = y$, then $tan\theta$ is		2	1
(a) <i>xy</i>	$(b)\frac{1}{xy}$	$(c)\frac{y}{x}$	$(d)\frac{x}{y}$	
A fair die is thrown once. The probability of even number is				<u>1</u>
(<i>a</i>) 0	$(b)\frac{1}{3}$	$(c)\frac{3}{4}$	(<i>d</i>)1	
The Decimal represe	entation of $\frac{23}{r^2 \times 2^3}$			<u>1</u>
(<i>i</i>)Terminating	(<i>ii</i>) Non Terminating	(<i>iii</i>) Both	(<i>iv</i>) None	
The LCM of $2^3 \times 3^2$	and $2^2 \times 3^2$ is.			1
$(i)2^3$	(<i>ii</i>) 3 ³	(<i>iii</i>) $2^3 \times 3^2$	(<i>iv</i>) $2^2 \times 3^2$	
The HCF of two num	ber is 18 and their product	is 12960. Their LCM will	ll be ;	<u>1</u>
(<i>i</i>) 420	(<i>ii</i>) 600	(iii) 720	(<i>iv</i>) 800	
The Co-ordinates of the point P divides the line segment joining the points $A(1,3)$ and P (4, 6) in the ratio 2:1 are:			<u>1</u>	
(i)(2,4)	(<i>ii</i>) (4,6)	(<i>iii</i>) (4, 2)	(iv)(3,5)	
The Prime Factorisat	ion of 3825 is:			1
$(i) \ 3 \times 5 \times 5 \times 21$	$(ii)3^2 \times 5^2 \times 35$	(<i>iii</i>) $3^2 \times 5^2 \times 17$	$(iv)3^2 \times 17 \times 25$	_
In a throw of a pair of dice ,the probability of the same number on both die is			<u>1</u>	
(<i>i</i>) $\frac{1}{6}$	$(ii) \frac{1}{3}$	$(iii)\frac{1}{2}$	(<i>iv</i>) 0	
If -1 is zero of the pol	ynomial $\tilde{p}(x) = x^2 - 7x - 8$, then the other zero is		<u>1</u>
(i) - 8	(<i>ii</i>) – 7	(<i>iii</i>) 1	(<i>iv</i>) 8	
	A box contains cards probability that the dr (a) $\frac{1}{4}$ If $sin\theta = x$ and co (a) xy A fair die is throw (a) 0 The Decimal represe (<i>i</i>)Terminating The LCM of $2^3 \times 3^2$ (<i>i</i>) 2^3 The HCF of two num (<i>i</i>) 420 The Co-ordinates of (<i>i</i>)(2,4) The Prime Factorisat (<i>i</i>) $3 \times 5 \times 5 \times 21$ In a throw of a pair of (<i>i</i>) $\frac{1}{6}$ If -1 is zero of the pol (<i>i</i>) - 8	QUESTIC SECTIONA box contains cards numbered 6 to 50. A card is probability that the drawn card has a number which $(a)_{1}^{1}$ (b) $\frac{1}{215}$ If $sin \theta = x$ and $cos \theta = y$, then $tan \theta$ is $(a) xy$ (b) $\frac{1}{215}$ A fair die is thrown once. The probability of $(a) 0$ (b) $\frac{1}{xy}$ A fair die is thrown once. The probability of $(a) 0$ (b) $\frac{1}{3}$ The Decimal representation of $\frac{23}{5^2 \times 2^3}$ (i) Terminating(ii) Non TerminatingThe LCM of $2^3 \times 3^2$ and $2^2 \times 3^2$ is. $(i) 2^3$ (i) 23(ii) Non TerminatingThe HCF of two number is 18 and their product $(i) 420$ (ii) 600The Co-ordinates of the point P divides the line B (4, 6) in the rat $(i)(2, 4)$ (ii) (4, 6)The Prime Factorisation of 3825 is: $(i) 3 \times 5 \times 5 \times 21$ (ii) $3^2 \times 5^2 \times 35$ In a throw of a pair of dice , the probability of the s $(i) \frac{1}{6}$ (ii) $\frac{1}{3}$ If -1 is zero of the polynomial $p(x) = x^2 - 7x - 8$ $(i) - 8$ (ii) -7	QUESTIONS SECTION-AA box contains cards numbered 6 to 50. A card is drawn at random from t probability that the drawn card has a number which is a perfect square like 4,9 $(a)^{\frac{1}{4}}$ $(b)^{\frac{2}{15}}$ $(c)^{\frac{4}{45}}$ If $sin \theta = x$ and $cos \theta = y$, then $tan \theta$ is $(a)xy$ $(b)^{\frac{1}{15}}$ $(c)^{\frac{y}{x}}$ A fair die is thrown once. The probability of even number is $(a) 0$ $(a) 0$ $(b)^{\frac{1}{3}}$ $(c)^{\frac{3}{4}}$ The Decimal representation of $\frac{23}{5^2 \times 2^3}$ (i)Terminating(ii) Non Terminating(iii) BothThe LCM of $2^3 \times 3^2$ and $2^2 \times 3^2$ is. $(i) 2^3$ (iii) 3^3 (iii) 3^3 (iii) $2^3 \times 3^2$ The HCF of two number is 18 and their product is 12960. Their LCM will $(i) 420$ (ii) 600 (iii) 720 The Prime Factorisation of 3825 is: $(i) 3 \times 5 \times 5 \times 21$ (ii) $3^2 \times 5^2 \times 35$ (iii) $3^2 \times 5^2 \times 17$ In a throw of a pair of dice, the probability of the same number on both dice $(i)^{\frac{1}{6}}$ (ii) $\frac{1}{3}$ (iii) $\frac{1}{3}$ (iii) $\frac{1}{3}$ (iii) $\frac{1}{2}$	QUESTIONS SECTION-AA box contains cards numbered 6 to 50. A card is drawn at random from the box. The probability that the drawn card has a number which is a perfect square like 4,9is $(a)_{4}^{1}$ $(b)_{2}^{2}$ $(z)_{15}^{2}$ $(c)_{45}^{4}$ $(d)_{19}^{1}$ If $sin \theta = x$ and $cos \theta = y$, then $tan \theta$ is $(a) xy$ $(a)xy$ $(b)_{\frac{1}{xy}}^{2}$ $(c)_{x}^{\frac{y}{x}}$ $(d)_{x}^{\frac{y}{y}}$ A fair die is thrown once. The probability of even number is $(a) 0$ $(a) 0$ $(b)_{\frac{1}{3}}^{\frac{1}{3}}$ $(c)_{\frac{3}{4}}^{\frac{3}{4}}$ $(d)1$ The Decimal representation of $\frac{23}{5^2 \times 2^3}$ (i) Terminating (ii) Non Terminating (iii) Both (iv) NoneThe LCM of $2^3 \times 3^2$ and $2^2 \times 3^2$ is. $(i) 2^3$ $(i) 2^3$ $(ii) 3^3$ $(iii) 2^3 \times 3^2$ $(iv) 2^2 \times 3^2$ The HCF of two number is 18 and their product is 12960. Their LCM will be ; $(i) 420$ $(ii) 600$ $(iii) 720$ $(iv) 800$ The Co-ordinates of the point P divides the line segment joining the points A (1,3) and B (4,6) in the ratio 2: 1 are: $(i) (2,4)$ $(ii) (4,6)$ $(iii) 3^2 \times 5^2 \times 17$ The Prime Factorisation of 3825 is: $(i) 3 \times 5 \times 5 \times 21$ $(ii) 3^2 \times 5^2 \times 35$ $(iii) 3^2 \times 5^2 \times 17$ $(iv) 3^2 \times 17 \times 25$ In a throw of a pair of dice, the probability of the same number on both die is $(i) \frac{1}{6}$ $(ii) \frac{1}{3}$ $(iii) \frac{1}{2}$ $(iv) 0$ If -1 is zero of the polynomial $p(x) = x^2 - 7x - 8$, then the other ze

11.	The mid point of $(2p, 4)$ and $(2, 2q)$ is $(2, 6)$. Find the value of $p + q$				
	(<i>i</i>) 5	(<i>ii</i>) 6	<i>(iii)</i> 7	(<i>iv</i>)8	
12.	If $x + y = 14$ and $x - y = 4$; find the value of x and y.			<u>1</u>	
	(<i>i</i>) (9,5)	(<i>ii</i>)(−9, −5)	(<i>iii</i>)(9,0)	(<i>iv</i>) (0,4)	
13.	The distance between the points (0,5) and (-5,0) is:				
	(<i>i</i>) 5	(<i>ii</i>) $5\sqrt{2}$	<i>(iii)</i> 2√5	(<i>iv</i>) 10	
14.	If $CosA = \frac{4}{5}$ then fir	nd the value of <i>tanA</i> is			<u>1</u>
	3	3	4	, 5	
	$(l)\overline{5}$	$(u)\frac{1}{4}$	$(lll)\overline{3}$	$(lv) \frac{1}{3}$	
15.	If an event can not	$\frac{1}{2}$ occur, then its probability	y IS		<u>1</u>
	(<i>i</i>) 1	$(ii)\frac{3}{4}$	$(iii) \frac{1}{2}$	(<i>iv</i>) 0	
16.	$P(E) + P(\overline{E}) = $	_			1
	(<i>i</i>) 1	<i>(ii)</i> 2	(iii) - 1	(<i>iv</i>) 0	
17.	If $a^2 = \frac{23}{25}$ then a is				<u>1</u>
	(i) rational	(ii) irrational	(iii) whole number	(iv) integer	
18.	If $LCM(x, 18) = 36$	and $HCF(x, 18) = 2$, then	n x is		1
	<i>(i)</i> 2	(<i>ii</i>) 3	<i>(iii)</i> 4	(<i>iv</i>) 5	_
19.	A card is drawn fr	om a well shuffled deck o	f cards. What is the probabi	lity that the card	1
	drawn is ace of sp	ade.			
	(<i>i</i>) $\frac{2}{13}$	$(ii) \frac{1}{13}$	$(iii) \frac{1}{52}$	(<i>iv</i>) 0	
20.	What is the length of an altitude of an equilateral triangle of side 8cm?				1
	(<i>i</i>) $2\sqrt{3}$	$(ii)3\sqrt{3}$	$(iii)4\sqrt{3}$	$(iv) 5\sqrt{3}$	
		SECT	ION-B		
21	$\sin 2A = 2 \sin A$ is	s true when A is equal to			1
21.	(<i>i</i>) 45°	(<i>ii</i>)60°	(<i>iii</i>) 30°	$(iv) 0^{\circ}$	_ ≛
22.	$9 \sec^2 A - 9 \tan^2 A$	1 is equal to		()	1
	(<i>i</i>) 9	(<i>ii</i>) 1	(<i>iii</i>)0	(iv) - 1	_
23.	The distance between the point $P(1,4)$ and $Q(4,0)$ is				1
	(<i>i</i>) 4	(<i>ii</i>) 5	<i>(iii)</i> 6	$(iv) 3\sqrt{3}$	_
24.	The points (1,1), (-	-2,7) and (3, -3) are			1
	(i) vertices of an	equilateral triangle	(<i>ii</i>) collinear		
	(<i>iii</i>) vert	ices of an isosceles triangle	e (<i>iv</i>) none	e of these	
25.	HCF of 8, 9, 25 is				<u>1</u>
	(<i>i</i>) 8	(<i>ii</i>) 9	(iii) 25	<i>(iv)</i> 1	
26.	The set $A = \{0, 1, 2\}$	$2, 3, 4, \ldots$ represents the	set of		<u>1</u>
	(<i>i</i>) Whole Number (<i>ii</i>) Natural number (<i>iii</i>) Even Number (<i>iv</i>) none				-
27.			(;;;) 1011	(in) 1101	<u>1</u>
1	(1) 1510	(11) 1452	(111) 1011	$(iv) \pm 121$	

28.	The Zeros of quadratic polynomial $x^2 + 7x + 12$ is	1			
	(i) 4& 3 $(ii) -4& -3$ $(iii) 4& -3$ $(iv) 0& 1$	=			
29.	In a quadratic polynomial sum of roots $\alpha + \beta = __$				
	$(i) \frac{b}{c}$ $(ii) \frac{c}{c}$ $(iii) -\frac{b}{c}$ $(iv) None$				
	a a a a a a				
30.	dice is:	<u>1</u>			
	1 1 1 1				
	(i) $\frac{1}{36}$ (ii) $\frac{1}{2}$ (iii) $\frac{1}{6}$ (iv) $\frac{1}{4}$				
31.	$(6 + 5\sqrt{3}) - (4 - 3\sqrt{3})$ is	1			
	(<i>i</i>) An irrational Number (<i>ii</i>) Natural number (<i>iii</i>) Rational Number (<i>iv</i>) none	—			
32.	If $LCM(77,99) = 693$, then $HCF(77,99)$ is	1			
	(<i>i</i>) 11 (<i>ii</i>) 7 (<i>iii</i>) 9 (<i>iv</i>) 22				
33.	$7 \times 11 \times 13 \times 15 + 15$ is a	<u>1</u>			
	(<i>i</i>) <i>Prime</i> Number (<i>ii</i>) Composite number (<i>iii</i>) Rational Number (<i>iv</i>) none				
34.	Find roots of quadratic equation $t^2 - 15 = 0$	<u>1</u>			
	$(i) \pm \sqrt{15}$ $(ii) \sqrt{15}$ $(iii) 0,15$ $(iv) - 15,15$				
35.	The value of $cos 0^\circ$. $cos 1^\circ$. $cos 2^\circ$. $cos 3^\circ$ $cos 89^\circ cos 90^\circ$ is	<u>1</u>			
	$\begin{array}{c} (l) \ 1 & (ll) - 1 & (ll) \ 0 & (lv) \ 1/2 \\ \hline \end{array}$				
36.	Find the value of $2tan^2 45^\circ + 5in^2 30^\circ - Cos^2 60 is$	<u>1</u>			
27	$(l) 0 \qquad (ll) 2 \qquad (lll) - 2 \qquad (ll) 5/4$	1			
57.	If $tan(A + B) = \sqrt{3}$ and $tan(A - B) = \frac{1}{\sqrt{3}}$, then find the value of A and B.	Ŧ			
	$(i) 90^{\circ}, 0^{\circ}$ $(ii) 45^{\circ}, 15^{\circ}$ $(iii) 60^{\circ}, 30^{\circ}$ $(iv) None$				
38.	Find the coordinates of the points which divides the join of $(-1,7)$ and $(4,-3)$ in the ratio 2:3	<u>1</u>			
20	$ \begin{array}{c} (l) (1,3) \\ (ll) (3,1) \\ (ll) (-1,-3) \\ (ll) (-3,-1) \end{array} $				
39.	If $tanA = 1/\sqrt{3}$ then find the value of A. (i) 45° (ii) 20° (iii) 60° (iii) 0°	1			
40	(l) 45 (ll) 50 (ll) 60 (ll) 0	1			
40.	b c b	<u>+</u>			
	(i) $\frac{a}{a}$ (ii) $\frac{b}{a}$ (iii) $-\frac{b}{a}$ (iv)None				
	Case study based questions				
	Section C consists of 10 questions of 1 mark each. Any 8 questions are to be attempted.				
	Case Study:-1				
	A park has swings made of rubber and iron chain. Sachin who is studying in class X have noticed				
	that this is a Mathematical shape, he has learned in Maths class.				
	Following questions raised in his mind. Answer the questions by observing both				
	pictures :				

	Line of Symmetry x-intercepts y-intercept	
41.	Name the shape in which the wire is bent.ii) Spiraliii) ellipseiii) lineariv) Parabola	<u>1</u>
42.	How many zeroes are there for the polynomial (shape of the wire)? <i>i</i>) 2 <i>ii</i>) 3 <i>iii</i>) 1 <i>iv</i>) 0	<u>1</u>
43.	The zeroes of the polynomial are i) - 1.5 $ii) - 1.3$ $iii) 3.5$ $iv) - 4.2$	<u>1</u>
44.	What will be the expression of the polynomial? <i>i</i>) $x^2 + 2x - 3$ <i>ii</i>) $x^2 - 2x + 3$ <i>iii</i>) $x^2 - 2x - 3$ <i>iv</i>) $x^2 + 2x + 3$	<u>1</u>
45.	What is the value of the polynomial if $x = 1$? $i) - 4$ $ii) 5$ $iii) - 5$ $iv) 6$	<u>1</u>
	Case Study:-2 On a weekend Rani was playing cards with her family. The deck has 52 cards. If her brother drew one card.	
46.	Find the probability of getting a king of red colour. $(i) \frac{1}{52}$ $(ii) \frac{1}{13}$ $(iii) \frac{1}{26}$ $(iv) \frac{1}{4}$	1
47.	Find the probability of getting a face card. (i) $\frac{1}{13}$ (ii) $\frac{2}{13}$ (iii) $\frac{3}{13}$ (iv) $\frac{4}{13}$	1
48.	Find the probability of getting a jack of hearts.(i) $\frac{1}{13}$ (ii) $\frac{1}{26}$ (iii) $\frac{1}{52}$ (iv) $\frac{2}{13}$	<u>1</u>
49.	Find the probability of getting a queen of hearts. $(i) \frac{1}{52}$ $(ii) \frac{1}{13}$ $(iii) \frac{1}{26}$ $(iv) \frac{1}{4}$	<u>1</u>
50.	Find the probability of getting a non face card. $(i) \frac{3}{13}$ $(ii) \frac{10}{13}$ $(iii) \frac{1}{52}$ $(iv) \frac{1}{4}$	<u>1</u>

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